

island of Jamaica during November 17-18, 1912. The last one is the latest hurricane of record in the North Atlantic during any year since more or less complete vessel reports became available in 1886. Its center passed the Virginia capes early on December 3, which is just a week later in the year than the hurricane of November, 1888, its center passing east of the Virginia capes on November 26. The last named was more severe, however, as it moved northeastward off the coast, and it caused great damage. The December, 1925, hurricane did not cause any great amount of damage, except over the Florida Peninsula; and, furthermore, it decreased in intensity after reaching the North Carolina coast. The highest wind velocity reported from any land station was 64 miles an hour from the northeast at Atlantic City, N. J. Cape Henry, Va., and Block Island, R. I., reported 60 miles an hour from the same direction.

Storm warnings were issued for portions of the Atlantic coast on the 5th, 8th, 9th, 12th, 19th, 22d, 25th, and 27th, and they were verified, as a rule. Velocities in excess of 50 miles an hour were reported from at least one station in connection with four of the storms for which warnings were issued.

Small-craft warnings were issued for limited sections of the Atlantic or east Gulf coasts on the 5th, 13th, 19th, 21st, and 28th. Warnings of northers were sent to the chief hydrographer, Cristobal, Panama Canal Zone, on the 22d and 28th.

No cold-wave warnings were issued until the 22d, when they were ordered for South Carolina, Georgia, extreme eastern Tennessee, extreme western North Carolina, and extreme northern Florida. The severe cold spell of the last week of the month came on rather gradually over parts of the Washington district, but cold-wave warnings were issued the evening of the 26th for Mississippi, Alabama, western Tennessee, and extreme northwestern Florida. The temperature fell to 2° at Anniston, Ala., 18° at Mobile, Ala., and Pensacola, Fla., 12° at Macon, Ga., and 24° at Jacksonville, Fla. At Tampa, Fla., the lowest was 34°.

Frost warnings were issued for portions of the extreme south on 16 dates during the month. On 5 dates warnings were issued for central Florida, the most important of which were those of the 22d and 23d.—*C. L. Mitchell.*

CHICAGO FORECAST DISTRICT

Storm warnings.—Three disturbances that attained storm force more or less generally on the Great Lakes occurred before the closing of the storm warning season on the 15th.

On the morning of the 3d a trough of low pressure covered the Great Plains, with the principal center over southeastern Kansas, and a secondary over northwestern Minnesota. The whole disturbance advanced slowly eastward for about 24 hours, following which it recurved and began to move slowly north-northeastward. After the center reached Lake Michigan the intensity began to diminish. Upon reaching Lake Superior the direction of movement again changed, and an east-northeastward path was taken. General and timely storm warnings were issued for this storm, and in most cases either verifying or near verifying velocities were attained at the regular stations on the Lakes.

On the 8th rather general storm warnings were again issued in connection with a disturbance that had advanced rapidly from the northwest, and with a marked increase in energy as it reached Lake Superior. The storm continued its rapid progress, reaching the mouth

of the St. Lawrence River on the morning of the 19th with a still further increase in intensity. On the Great Lakes winds were almost generally of storm force in connection with this disturbance. At Buffalo, N. Y., 66 miles was attained.

The third and final disturbance of the storm warning season prevailed from the 11th to the 14th, inclusive. This storm also advanced to the Great Lakes from the northwest, reaching Lake Superior on the night of the 10th-11th. Thereupon, the storm divided, one portion moving rapidly eastward and the other following in its rear at a slower rate. The warnings issued in this connection were quite general in their scope and were fully justified, verifying velocities occurring at most stations. At Buffalo, N. Y., a maximum velocity of 70 miles an hour was reached.

After the close of the regular storm warning season each year advisory warnings are issued for Lake Michigan whenever the conditions seem to justify. Three warnings of this character were issued for the current month. The warning of the 23d was followed by storm winds and moderate gales on the southern portion of the Lake, but in the other two instances the wind fell short of storm strength.

Cold waves.—A few local cold waves occurred from time to time during the month, but there was no widespread cold wave until the last week when a marked change to colder weather was experienced generally. Cold waves occurred at this time in most of the southern and western portions of the district. The low temperatures were unusually persistent, and it was not until the last day of the month that normal temperatures were again reached in most sections. The attendant high-pressure area was of great magnitude and appeared to have its origin in the region east of Alaska. At Miles City, Mont., the reduced barometer on the morning of the 27th was 31.22 inches.

The only cold wave warnings issued during the month were those on the 8th for northern Minnesota, and on the 26th and 27th for Wyoming and most of Montana.

Stock warnings.—Warnings for the benefit of livestock were disseminated on the 19th for Nebraska and western Kansas. The ensuing conditions were as forecast.

Change in forecast district.—The States of Montana and Wyoming were transferred from the Chicago to the Denver forecast district, effective January 1, 1926. On and after that date all weather forecasts and warnings for these States will be issued from Denver, Colo.—*C. A. Donnel.*

NEW ORLEANS FORECAST DISTRICT

Anticyclonic conditions were dominant in this district during the greater part of the month, with average temperature considerably below normal and comparatively dry weather, except for precipitation above normal on the west coast of Texas. A cold rain, mixed occasionally with small amounts of sleet and snow, fell on the Texas coast during the last five days, with temperatures of freezing or lower for a considerable part of this period.

Small-craft warnings were displayed on the Texas coast on the 3d and on the Louisiana coast and east coast of Texas on the 4th, because of an interior disturbance. While the disturbance was passing eastward a wind velocity of 44 miles an hour occurred at Galveston, Tex., in the early morning of the 4th. Small craft warnings were displayed also on the 13th and 14th on the Texas coast, being changed to northwest storm warnings at 8:30 p. m. of the 14th. These warnings were justified.

The advance of the anticyclonic area of the 13th-16th was attended by colder weather, for which cold-wave warnings were issued for the northern portion of the district on the 13th and extended over most interior sections of the district on the 14th. As the LOW in advance of the HIGH decreased greatly in intensity and the HIGH settled with crest over the Plateau States, the fall in temperatures was not sufficient to verify cold wave warnings in much of the area covered by the warnings.

A cold wave on the 20th-21st occurred in the northern portion of the district, following an eastward moving trough of low pressure. The high pressure following this LOW moved slowly over the Gulf States, prolonging the period of cold weather until the 24th.

Livestock warnings were issued for Oklahoma and north portion of west Texas on the morning of Saturday, the 26th, with a prediction of much colder weather Sunday and Sunday night; and much colder Sunday night was forecast for Arkansas. The 8 p. m. map of the 26th revealed such rapid southward progress of the area of high pressure that warnings for a severe cold wave were issued for the entire district, and these warnings were repeated the next morning for most sections of the district, with more specific temperature forecasts. Warnings for stockmen were included in the cold-wave warnings. The cold wave advanced to the coast as forecast, with the lowest temperatures of the month on the 28th, and was attended by strong northerly winds, for which north-west storm warnings were issued for the Texas coast at 8:30 p. m. of the 26th and small-craft warnings were displayed on the Louisiana coast on the 27th.

Warnings for frost or freezing temperature were issued for the more southern portions of the district on the 4th, 5th, 15th, 16th, 17th, 21st, 22d, 23d, 25th, and 28th. Conditions occurred mostly as forecast.

Fire-weather warnings were sent to addresses in Arkansas, Oklahoma, and Texas on the 3d. Norther warnings for Tampico, Mexico, were issued to interests concerned on the 15th and 27th.—*R. A. Dyke.*

DENVER FORECAST DISTRICT

Temperatures averaged above normal except in New Mexico, where it was unusually cold, especially in the extreme south portion. Precipitation was considerably above normal in eastern Colorado and excessive in the extreme north-central portion; in all other parts of the district it was deficient. The notable meteorological feature of the month was that practically all of the energetic disturbances that affected the district appeared in or crossed eastern Colorado and there were none of the usual winter developments of LOWs in the Plateau region. Warnings of moderate cold waves were issued for southeastern New Mexico on the mornings of the 14th and 20th, of a severe cold wave for eastern Colorado and a moderate cold wave for eastern New Mexico on the evening of the 26th, the latter being repeated as a livestock warning for eastern New Mexico on the morning of the 27th. All of these warnings were fully verified as to temperature, but the snow forecast on the 27th for eastern New Mexico did not occur, so that the livestock

warning was not justified. Warnings of frost or freezing temperature for south-central and southeastern Arizona were issued on 18 days, the greater part of them being verified.—*E. B. Gittings, jr.*

SAN FRANCISCO FORECAST DISTRICT

During the month of December, 1925, the weather in this district was dominated by a series of high-pressure areas which moved in from the Pacific Ocean and became more or less stagnant over the Plateau region. This condition caused storms from the North Pacific Ocean to move eastward at an unusually high latitude for this season of the year. When these areas of high pressure moved eastward or disintegrated, the storms swung farther south and gave precipitation in this district.

There were three wet periods during the month; on the 1st and 2d and from the 18th to the 23d rain or snow occurred generally throughout the district, and from the 10th to the 13th, in the North Pacific States and Idaho. On the 28th local rain occurred in southern California. Tule fog prevailed in the Sacramento and San Joaquin Valleys during the third decade.

Frosts occurred quite often in northern California but caused no material damage.

Storm warnings were ordered along the coast 8 times, and, while verifying velocities at coast stations did not occur on all occasions, vessel reports at sea indicated the warnings were justified.—*G. H. Willson.*

RIVERS AND FLOODS

By H. C. FRANKENFIELD

As will be noted in the table following this report, no floods of consequence occurred during the month.

Near the end of the month the Mississippi River was frozen as far down as the mouth of the Missouri River; at St. Louis heavy ice began running on the night of the 22d and by the morning of the 23d the river was full of thick cakes, causing a suspension of navigation. On this date also navigation was temporarily suspended in the lower Missouri for the same reason. Forecasts of these conditions were issued by the St. Louis office of the Weather Bureau in ample time to permit the safeguarding of boats, barges, and other floating property on both the Missouri and Mississippi in that district. Floating ice had been observed at New Madrid, Mo., by the end of the month, but none was reported at more southerly stations.

River	Station	Flood stage	Above flood stages—dates		Crest	
			From—	To—	Stage	Date
Mississippi drainage:		<i>Feet</i>			<i>Feet</i>	
Petit Jean.....	Danville, Ark.....	20	15	18	22.1	Dec. 16
Black.....	Corning, Ark.....	9	(1)	17	13.1	Nov. 15
	Black Rock, Ark.....	14	5	6	14.0	Dec. 5-6
Cache.....	Patterson, Ark.....	9	8	9	9.0	Dec. 8-9
Pacific drainage:						
Gila.....	Kelvin, Ariz.....	5	3	3	5.5	Dec. 3

¹ Continued from last month.